

Waimanalo Watershed:

Limitations and Opportunities for
Restoration

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Kailua Bay Advisory Council

Outline

- Kailua Bay Advisory Council
- Watershed issues: 303 (d) list
- KBAC's Watershed Action Plan
- Limitations
- Opportunities
- Next steps

Waimanalo
Stream below
Kalaniana'ole
Hwy.



Kailua Bay Advisory Council

- Formed in 1995 as a result of lawsuit
- Resulting Consent Decree outlined three program areas:
 - Implementation Program
 - Technical Program (research)
 - Volunteer Water Quality Monitoring Program

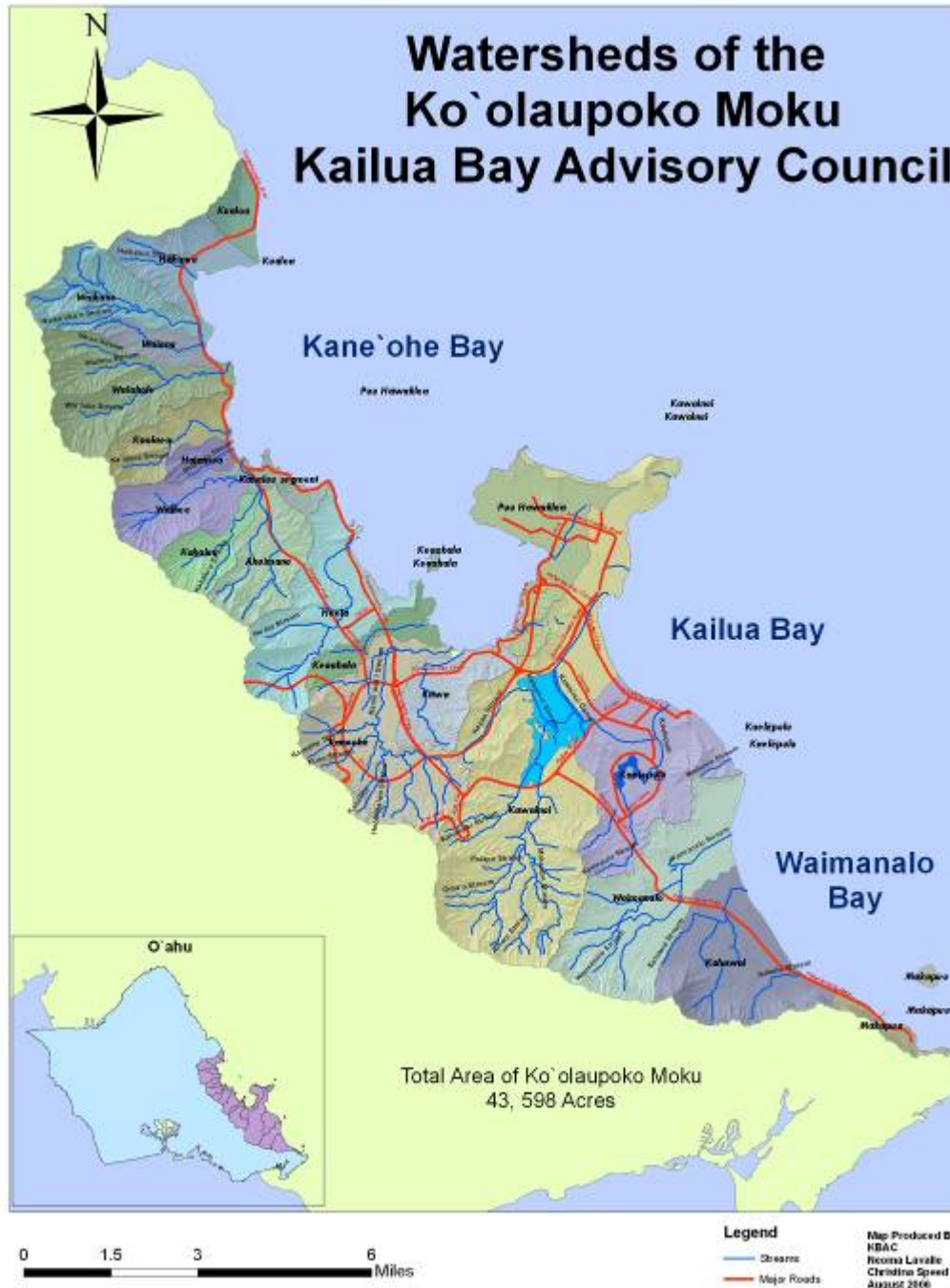
Watershed Issues

- 303 (d) list for
 - Nutrients
 - Turbidity
 - Suspended solids
- Other watershed pollutants
 - Chlorofluorocarbons, pesticides, temperature, heavy metals, petroleum-based hydrocarbons and bacteria may exceed standards (HDOH, 2001)
- TMDL completed in 2001 for Waimanalo Watershed

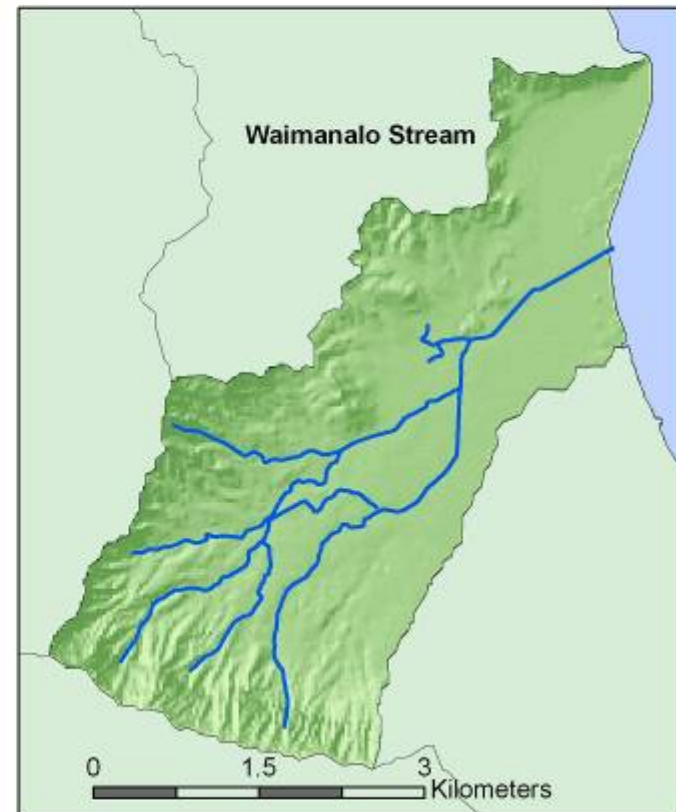
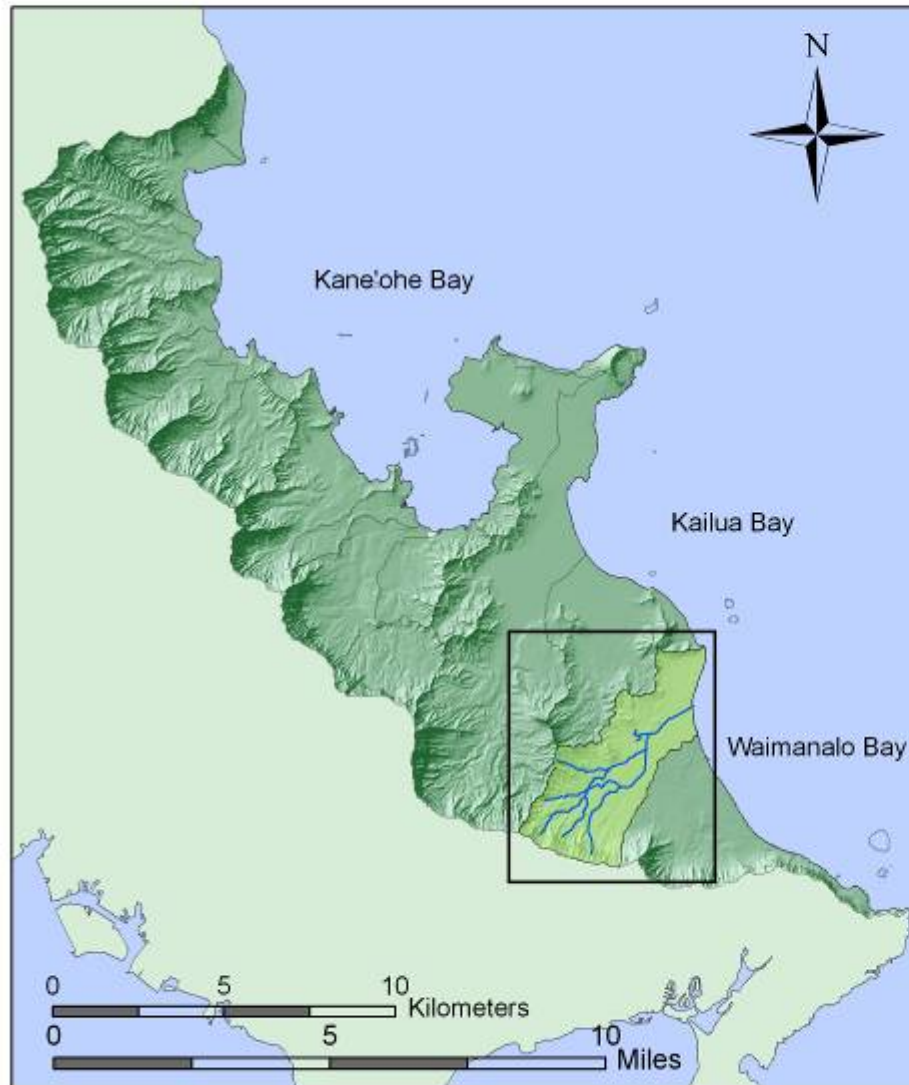
Watershed Restoration Action Strategy

- EPA based plan, focused primarily on NPS
- KBAC investigated all 20 sub-basins in the Koolaupoko moku: Makapu'u – Kualoa, EPA Priority Watershed
- Waimanalo, Kawa and Kaneohe have completed TMDLs
- Other basins have more/less data
- Restoration/BMP recommendations based on TMDLs, other research & GIS landscape analyses

Watersheds of the Ko'olaupoko Moku Kailua Bay Advisory Council



Ko'olaupoko Moku: Waimanalo Watershed



Map Created by:
KBAC
Christina Speed
August 2006

Habitat

- Question: Is the stream/watershed truly receiving an excess of pollutants or have significant habitat changes altered the stream's ability to assimilate/filter pollutants?

Waimanalo Stream
below Kalaniana'ole
Hwy.



Potential Sources of NPS pollutants

- Sediment: Erosion of streambank (NRCS, 2005), road cuts, road ditches, steep upland erosion
- Nutrients: animal waste and inorganic chemical fertilizers are contributors as well as antiquated cesspools (HDOH, 2001)



Waimanalo Stream- bank erosion

Photo courtesy of NRCS

Limitations

- NPS: Hard to track through watershed
- Lack comprehensive understanding of what single contributor is most significant (i.e. streambank erosion vs. road-cuts vs. upland erosion vs. natural background erosion)
- Many small ag producers potentially apply fertilizers vs. a few large producers (time and effort to understand sources)
- Limited financial/technical resources to implement Conservation Plans
- Lack of coordination among agencies, community and organizations
- Access to watershed

General Opportunities

- More data in Waimanalo Stream than most Koolaupoko moku streams (TMDLs, academia, agency research)
- Conservation Plans are written via SWCD/NRCS
- Restoration funds via federal programs (EQIP, WHIP)
- Agencies, community groups and interested landowners addressing concerns

General Opportunities

- Work closely with NRCS, SWCD, RC&D and ag producers to implement written conservation/farm plans
- Link grant funds with NRCS programs to help cover landowner's share of payment
- Create programs for community involvement (clean-ups, tree planting, educational events, etc.)

Project Opportunities

- Precision Riparian Buffers—migrating, variable width buffer
- Soil, slope, landcover
 - Large landowners >1,000 acres
- Channelized, investigate, restoration and preserve
- Based on aerial interpretation of riparian habitat/landownership
 - Restore 44 acres/18 hectares
 - Preserve 239 acres/97 hectares (watershed)

Waimanalo: Restoration and Preservation Opportunities



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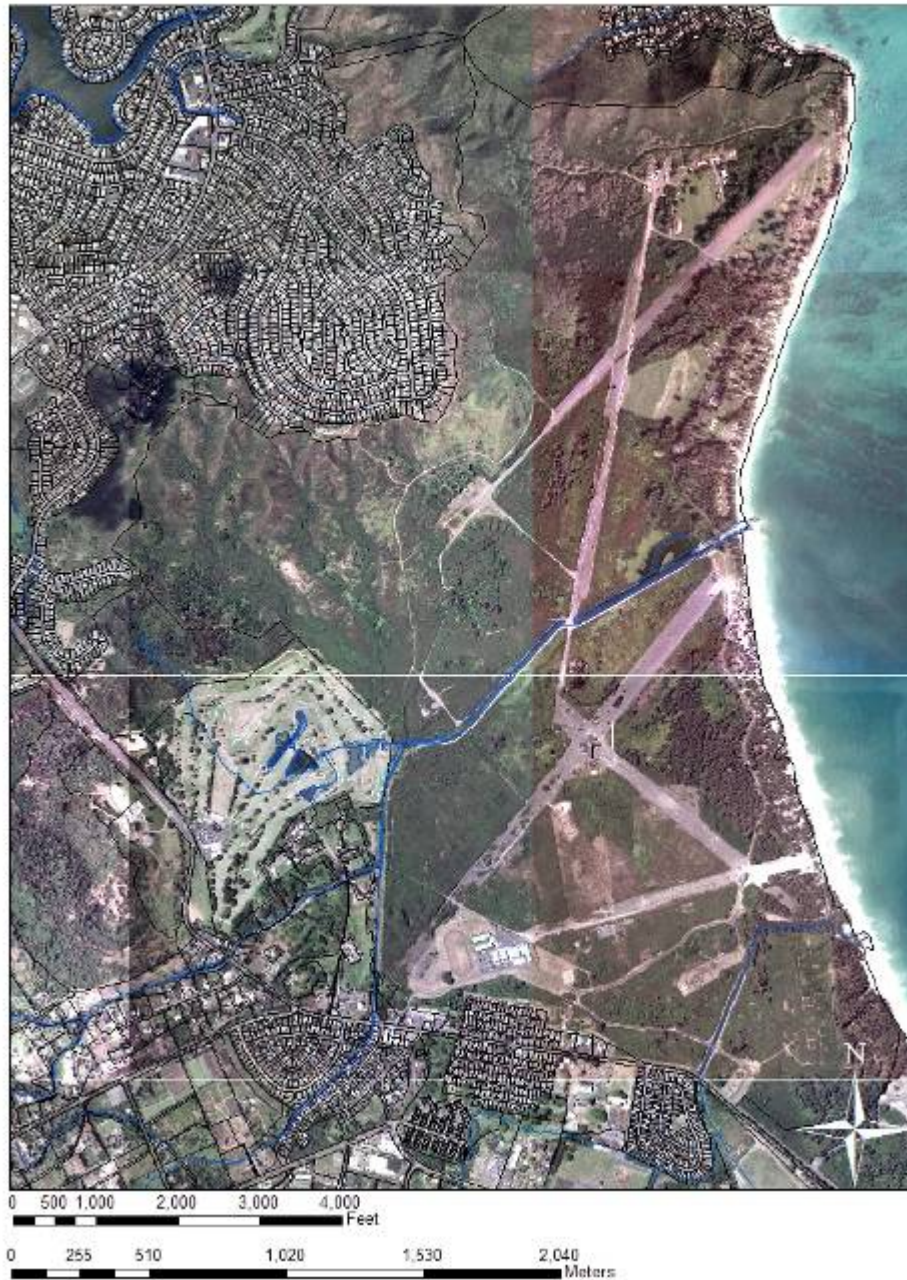
Legend

- Streams
- Preserve (239 acres/97 hectares)
- Restore (44 acres/18 hectares)

Map Created by:
KBAC
Christina Speed
May 2007

Project Opportunities, con't

- ④ Habitat improvement in lower section of Waimanalo Stream throughout Bellows
 - Increase sinuosity of Waimanalo Stream, reconnect stream with floodplain
 - Freshwater and estuarine wetland restoration opportunities
 - Filter pollutants before entering near shore environment

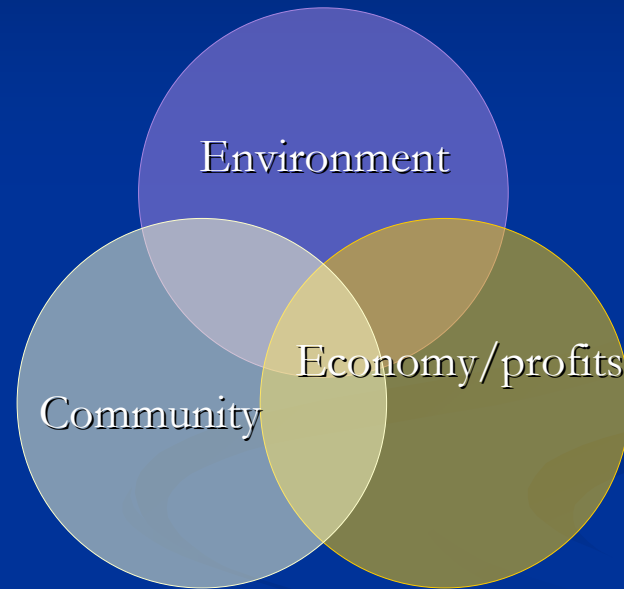


Project opportunities, con't

- Ag producers are key to restoration success
- Work with producers to implement BMPs and conservation plans on ag lands
- Link together small landowners to monitor success or implement adaptive management of BMPs
- Monitor to determine if cesspools are significant contributors

Next Steps

- Create opportunities and partnerships with agencies, landowners and community
- Work with landowners/producers regarding benefits of BMPs and restoration in context of triple bottom-line:



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